U.S. Patent Application No. 10/681,352
Amendment dated May 5, 2006
Response to Office Action dated February 24, 2006

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1.   (Currently amended) A screening An evaluating method to determine effective cancer treatment medicines, comprising:

(1a)   determining at least one position of at least one polymorphic amino acid in at least one amino acid sequence, encoded by at least one of DRB1*gene, DQB1*gene, and DPB1*gene of HLA,

(2b)   analyzing variations of at least one amino acid of the at least one position of the at least one polymorphic amino acid, and survival results in a patient population by one of the following cancer treatments: cancer resection alone with no adjuvant therapy, anticancer chemotherapy after cancer resection, or anticancer immunotherapy after cancer resection,

(3c)   determining variations of at least one amino acid of the at least one position of the at least one polymorphic amino acid that have a statistically significant relationship with at least one of the treatments,

(4d)   creating a three-dimensional structure of at least one amino acid sequence encoded by at least one of DRB1*gene, DQB1*gene, and DPB1*gene of HLA and containing at least one variation of at least one amino acid determined in step (3c), and

(5e)   screening evaluating a set of candidate compounds to determine candidate compounds that interact with the three-dimensional structure, wherein candidate compounds that

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interact with the three-dimensional structure are identified as cancer treatment medicines,

(f)   positively correlating said candidate compounds and said cancer treatment medicines with a reduction or lack of growth of cancer cells and/or tumors or reduction in the rate of cancer metastases, and

(g)   providing statistically significant relationships by combining and evaluating information from (a), (b), (c), (d), (e), and (f), wherein

i) the at least one position of the amino acid of HLA DQB1*gene in (a) comprises at least one of -21, -6, -5, -4, 3, 9, 14, 19, 23, 30, 37, 38, 45, 53, 55, 56, 57, 66, 67, 70, 71, 74, 77, 84, 85, 86, 87, 89, 90, 116, 125, 130, 140, 182, 197, 220, 221, and 224,

ii) the at least one position of amino acid of HLA DRB1*gene in (a) comprises at least one of -25, -24, -17, -16, -1, 9, 10, 11, 13, 14, 16, 25, 26, 28, 30, 31, 32, 33, 37, 38, 40, 47, 57, 60, 67, 70, 71, 73, 74, 77, 78, 85, 86, 96, 98, 104, 120, 133, 142, 166, 231, and 233; and

iii) the at least one position of amino acid of HLA DPB1* gene in (a) comprises at least one of 8, 9, 11, 35, 36, 55, 56, 57, 65, 69, 76, 84, 85, 86, and 87.

2.   (Currently amended) The method according to claim 1, wherein cancer said statistically significant relationship is analyzed by distinguishing stomach cancer and others.

3.   (Currently amended) The method according to claim 1, which is carried out by utilizing drug designing techniques based on comparison with the a three-dimensional structure of the candidate compounds.

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4.   (Previously presented) The method according to claim 1, wherein effective cancer treatment medicines can suppress and control metastasis of cancer.

5.   (Previously presented) The method according to claim 1, wherein effective cancer treatment medicines are immunological medicines.

6.   (Previously presented) The method according to claim 1, wherein effective cancer treatment medicines are chemotherapeutic medicines.

7-10.   (Canceled)

11.   (Currently amended) A measuring method for evaluating anticancer treatments, comprising:

(1a)   determining at least one position of at least one polymorphic amino acid in at least one amino acid sequence, encoded by at least one of DRB1*gene, DQB1*gene, and DPB1*gene of HLA,

(2b)   analyzing variations of at least one amino acid of the at least one position of the at least one polymorphic amino acid, and survival results in a patient population by one of the following cancer treatments: cancer resection alone with no adjuvant therapy, anticancer chemotherapy after the cancer resection or the anticancer immunotherapy after the cancer resection,

(3c)   determining variations of at least one amino acid of the at least one position of the at least one polymorphic amino acid that have a statistically significant

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relationship with at least one of the treatments, and

(4d)   determining an amino acid sequence encoded by at least one of DRB1*gene, DQB1*gene, and DPB1*gene of HLA of a patient and determining whether amino acids at polymorphic positions encoded by at least one of DRB1*gene, DQB1*gene, and DPB1*gene of HLA of the patient correlates with a variation of at least one amino acid determined in step (3c) to have a statistically significant relationship with at least one of the cancer treatments, wherein

i) the at least one position of the amino acid of HLA DQB1*gene in (a) comprises at least one of -21, -6, -5, -4, 3, 9, 14, 19, 23, 30, 37, 38, 45, 53, 55, 56, 57, 66, 67, 70, 71, 74, 77, 84, 85, 86, 87, 89, 90, 116, 125, 130, 140, 182, 197, 220, 221, and 224,

ii) the at least one position of amino acid of HLA DRB1*gene in (a) comprises at least one of -25, -24, -17, -16, -1, 9, 10, 11, 13, 14, 16, 25, 26, 28, 30, 31, 32, 33, 37, 38, 40, 47, 57, 60, 67, 70, 71, 73, 74, 77, 78, 85, 86, 96, 98, 104, 120, 133, 142, 166, 231, and 233; and

iii) the at least one position of amino acid of HLA DPB1* gene in (a) comprises at least one of 8, 9, 11, 35, 36, 55, 56, 57, 65, 69, 76, 84, 85, 86, and 87.

12.   (Currently amended) The method of claim 11, wherein ~~cancer~~ said statistically significant relationship is analyzed by distinguishing stomach cancer from other cancers.

13.   (Currently amended) A measuring method for evaluating cancer treatments, comprising:

(1a)   determining at least one position of at least one polymorphic amino acid in at least one amino acid sequence, encoded by at least one of DRB1*gene, DQB1*gene, and

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DPB1*gene of HLA,

(2b) analyzing variations of at least one amino acid of base sequences coding at least one position of the at least one polymorphic amino acid, and survival results in a patient population by one of the following cancer treatments: cancer resection alone with no adjuvant therapy), anticancer chemotherapy after cancer resection or anticancer immunotherapy after cancer resection,

(3c) determining variations of at least one amino acid of the base sequences coding at least one of the polymorphic amino acid that have a statistically significant relationship with the treatments, and

(4d) determining a base sequence of at least one of DRB1*gene, DQB1*gene, and DPB1*gene of HLA of a patient and determining whether base sequences of polymorphic positions of at least one of DRB1*gene, DQB1*gene, and DPB1*gene of HLA of a patient correlates with a variation of at least one amino acid determined in step (3c) to have a statistically significant relationship with at least one of the cancer treatments, wherein

i) the at least one position of amino acid of HLA DQB1*gene in (a) comprises at least one of -21, -6, -5, -4, 3, 9, 14, 19, 23, 30, 37, 38, 45, 53, 55, 56, 57, 66, 67, 70, 71, 74, 77, 84, 85, 86, 87, 89, 90, 116, 125, 130, 140, 182, 197, 220, 221, and 224,

ii) the at least one position of amino acid of HLA DRB1*gene in (a) comprises at least one of -25, -24, -17, -16, -1, 9, 10, 11, 13, 14, 16, 25, 26, 28, 30, 31, 32, 33, 37, 38, 40, 47, 57, 60, 67, 70, 71, 73, 74, 77, 78, 85, 86, 96, 98, 104, 120, 133, 142, 166, 231, and 233; and

iii) the at least one position of amino acid HLA DPB1* gene in (a) comprises at least one of 8, 9, 11, 35, 36, 55, 56, 57, 65, 69, 76, 84, 85, 86, and 87.

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14.   (Currently amended) The method according to claim 13, wherein ~~cancer~~ said statistically significant relationship is analyzed by distinguishing stomach cancer from other cancers.

15-18. (Canceled)

19.   (Currently amended) A composition comprising an isolated polypeptide having an amino acid sequence encoded by least one of a polymorphic variation of at least one position of a DRB1*gene, DQB1*gene, and DPB1*gene of HLA, wherein the polymorphic variation provides at least one variation of at least one amino acid for at least one position and ~~the identity and/or position of the amino acids of the polymorphic variation~~ has a statistically significant relationship with a cancer treatment, and

    i) the at least one position of amino acid of HLA DQB1*gene comprises at least one of -21, -6, -5, -4, 3, 9, 14, 19, 23, 30, 37, 38, 45, 53, 55, 56, 57, 66, 67, 70, 71, 74, 77, 84, 85, 86, 87, 89, 90, 116, 125, 130, 140, 182, 197, 220, 221, and 224,

    ii) the at least one position of amino acid of HLA DRB1*gene comprises at least one of -25, -24, -17, -16, -1, 9, 10, 11, 13, 14, 16, 25, 26, 28, 30, 31, 32, 33, 37, 38, 40, 47, 57, 60, 67, 70, 71, 73, 74, 77, 78, 85, 86, 96, 98, 104, 120, 133, 142, 166, 231, and 233; and

    iii) the at least one position of amino acid HLA DPB1* gene comprises at least one of 8, 9, 11, 35, 36, 55, 56, 57, 65, 69, 76, 84, 85, 86, and 87.

20.   (Currently amended) The composition of claim 19, wherein the amino acid sequence is selected by

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    (1a) determining at least one position of at least one polymorphic amino acid in

at least one amino acid sequence encoded by at least one of DRB1*gene, DQB1*gene, and

DPB1*gene of HLA,

    (2b) analyzing variations <u>of at least one amino acid</u> of the at least one position

of the at least one polymorphic amino acid and survival results in a patient population by one or

more of the following cancer treatments: cancer resection alone with no adjuvant therapy,

anticancer chemotherapy after the cancer resection, or anticancer immunotherapy after the cancer

resection, and

    (3c) determining variations <u>of at least one amino acid</u> of the at least one

position of the at least one polymorphic amino acid that have a statistically significant

relationship with at least one of the cancer treatments.

21. (Currently amended) The composition according to claim 19, wherein<u> said significant</u>

<u>relationship</u> ~~cancer~~ is analyzed by distinguishing stomach cancer from other cancers.

22. (Currently amended) A composition comprising an isolated polypeptide ~~encoding~~

<u>encoded by</u> a polymorphic variation of a DRB1*gene, DQB1*gene, ~~and~~ <u>or</u> DPB1*gene of HLA,

wherein the polymorphic variation<u> provides at least one variation of at least one amino acid for at</u>

<u>least one position and</u> has a statistically significant relationship with a cancer treatment<u> and</u>

       <u>i) the at least one position of amino acid of HLA DQB1*gene comprises at</u>

<u>least one of -21, -6, -5, -4, 3, 9, 14, 19, 23, 30, 37, 38, 45, 53, 55, 56, 57, 66, 67, 70, 71, 74, 77,</u>

<u>84, 85, 86, 87, 89, 90, 116, 125, 130, 140, 182, 197, 220, 221, and 224,</u>

       <u>ii) the at least one position of amino acid of HLA DRB1*gene comprises</u>

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at least one of -25, -24, -17, -16, -1, 9, 10, 11, 13, 14, 16, 25, 26, 28, 30, 31, 32, 33, 37, 38, 40, 47, 57, 60, 67, 70, 71, 73, 74, 77, 78, 85, 86, 96, 98, 104, 120, 133, 142, 166, 231, and 233; and

iii) the at least one position of amino acid HLA DPB1* gene comprises at least one of 8, 9, 11, 35, 36, 55, 56, 57, 65, 69, 76, 84, 85, 86, and 87.

23.   (Currently amended) The composition of claim 22, wherein the amino acid sequence is selected by

(1a)   determining at least one position of at least one polymorphic amino acid in at least one amino acid sequence encoded by at least one of DRB1*gene, DQB1*gene, and or DPB1*gene of HLA,

(2b)   analyzing variations of at least one amino acid of base sequences coding at least one of the at least one polymorphic amino acid, and survival results in a patient population by one or more of the following cancer treatments: cancer resection alone with no adjuvant therapy, anticancer chemotherapy after cancer resection, or anticancer immunotherapy after cancer resection, and

(3c)   determining variations of at least one amino acid of the base sequences coding at least one of the polymorphic amino acid that have a statistically significant relationship with at least one of the cancer treatments.

24.   (Currently amended) The method composition according to claim 23, wherein said significant relationship cancer is analyzed by distinguishing stomach cancer from other cancers.